Case Report

Nephrobronchial fistula and lung abscess secondary to Xanthogranulomatous pyelonephritis

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ABSTRACT

There are multiple causes of lung abscess, but the differential rarely includes pyelonephritis as a primary cause leading to lung abscess resulting from the development of a nephrobronchial fistula. The patient had no urinary symptoms or abdominal pain and the etiology of lung abscess was only incidentally discovered after chest CT revealed extension of pleural fluid below the diaphragm.

KEY WORDS: Lung abscess, nephrobronchial fistula, pyelonephritis

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INTRODUCTION

We report a case of a patient who presented with anemia, non-productive cough since 15 days with no history of fever and was found to have a lung abscess secondary to a nephrobronchial fistula from asymptomatic pyelonephritis.

CASE REPORT

The patient was a 45-year-old healthy woman who presented with dry cough and breathlessness since 15 days. She had no history of sputum production or fever.

She had no past history of Kochs, no history of diabetes, no history of tobacco, alcohol or drug abuse.

Physical examination revealed pallor. She was afebrile. Pulse was of 98/minute, respiratory rate was of 20/min.

CVS and abdominal examination were normal. Breath sounds decreased at left lung base with dullness on percussion. Pallor was present. On OPD basis CXR was advised as she was pale, USG abdomen was advised to know the cause of anemia.

CXR revealed a large air fluid level in left hemithorax with elevation of hemidiaphragm. The total WBC count was 15,000, and hemoglobin was of 8.6 gm/dl. USG abdomen done to evaluate cause of anemia showed left-sided hydronephrosis. She was admitted for workup. Urine examination showed moderate pus cells, no casts, crystals, bacteria or amorphous material seen. Urine sample for AFB smear was negative. Urine culture showed no growth after 48 hours of incubation. Stool routine showed no abnormalities. Blood culture got sterile after 48 hours of incubation. Serum creatinine was 0.9.

CT scan chest showed large mildly enhancing area of air space opacification (consolidation) involving the left lower lobe with central necrotic area exhibiting an air fluid level suggestive of abscess formation and some subdiaphragmatic collection up to the abscess in the lung. Mild left side pleural collection was observed. Marked hydronephrosis with severe parenchymal thickening was seen.

CT urography confirmed gross hydronephrosis with multiple air fluid levels with severe parenchymal thinning. Multiple left renal and ureteric calculi were noted, findings suggestive of grossly infected left kidney/pyonephrosis with the extension of infection to the surrounding perinephric region. As the scan extended superiorly, the abscess was noted to communicate with the fluid

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collection that crossed the diaphragm and extended into the retroperitoneum.

Figures 1-3 show the findings on admission; the patient was started on broad spectrum antibiotics after sending blood culture.

As she was not able to induce sputum, bronchoscopy BAL was done which showed thick pus in left lower lobe, superior segment. Post scopy sputum was collected. BAL and sputum was sent for Gram stain, culture which showed few gram negative bacilli, AFB and fungal stain came negative, most probably because the patient had received a course of Levofloxacin for 5 days for dry cough prior to presentation. Anaerobic culture came negative.

Post a course of antibiotics of 6 days, lung abscesses reduced and nephrectomy was planned. DTPA scan showed only 3.31% functioning of left kidney. After correction of anemia, the patient was taken up for nephrectomy with double lumen tube and double lung ventilation with right lung isolated. Due to the presence of double lumen tube in the bronchus, any spillage of pus on handling kidney was sucked out through the left side of the double lumen tube, thus preventing any spillage on the healthy right side.

Extra-gerotal dissection was done all around the kidney. Dense adhesions were seen, especially toward the upper pole, tracking toward the diaphragm.

Careful dissection of all adhesions was done up to the tract leading to the nephrobronchial fistula which was cut and ligated. Subdiaphragmatic drain placed.

Histological examination of the kidney showed xanthogranulomatous pyelonephritis.

The patient did well after the operation with almost complete resolution on chest x ray and clinical abnormalities [Figure 4].

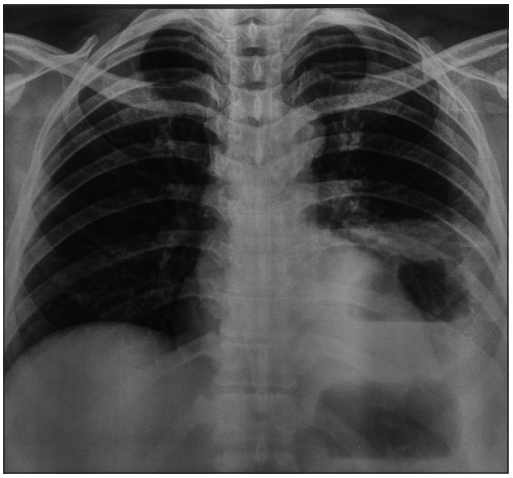

Figure 1: Chest x ray showing large air fluid level in the left hemithorax with elevation of left

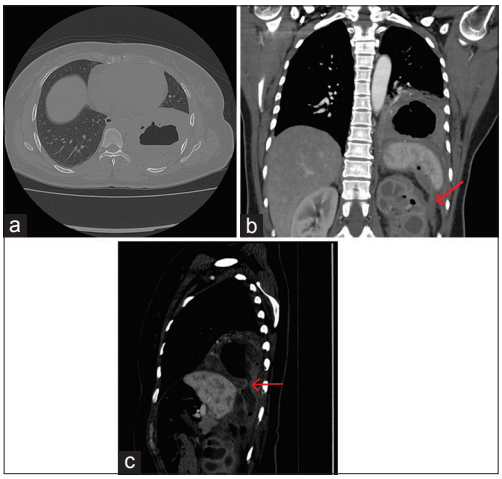

Figure 2: (a) CT showing a fluid filled cavity in the left lower lobe. (b) Sagittal section highlighting the adhesions. (c) Lateral sagittal section, highlighting the tract

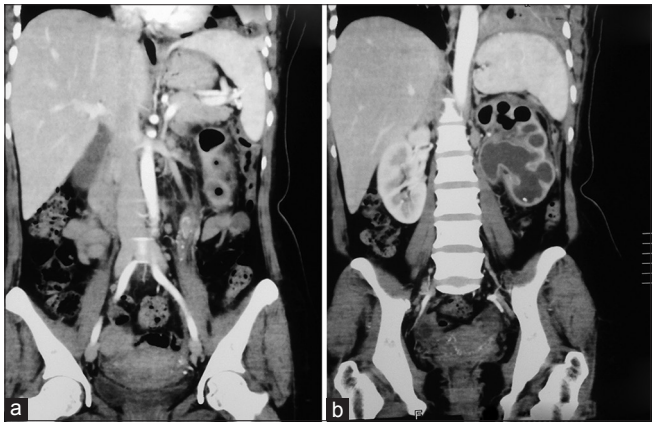

Figure 3: (a) CT urography showing gross hydronephrosis with multiple air fluid levels in the left kidney. (b) CT urography showing severe parenchymal thinning of left kidney with multiple air fluid level

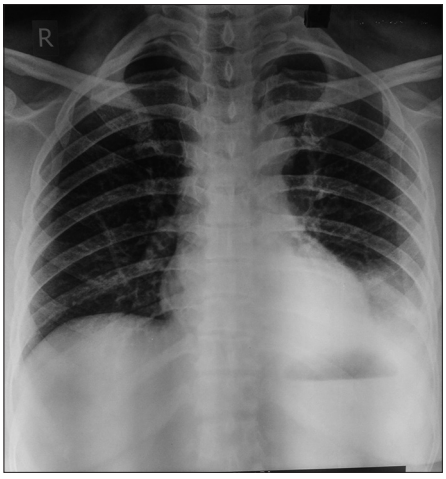

Figure 4: Post operative chest x ray showing significant resolution of the lesion

DISCUSSION

Xanthogranulomatous pyelonephritis is an uncommon atypical form of renal infection characterized by a cellular infiltrate of lipid laden mononuclear macrophage.

The inflammatory process may be invasive spreading to adjacent structures and after forming fistulous tract, the most commonly affected organs include the gastrointestinal tract, adjacent parts of the urinary tract and the skin.

Xanthgranulomatous pyonephritis has previously been reported in association with lung abscess and empyema owing to its invasive nature.[1-3] The preference for extension of inflammation superiorly through the diaphragm was described by Evans and Co workers[4] who noted that the lines of fusion of the renal fascial planes tend to direct the exudate within the retroperitoneal compartment. These patients typically respond well to drainage and antibiotic therapy but often require nephrectomy, as in our case.

This report emphasizes the need to consider renal abnormality as a cause for lung abscess and empyema even in the absence of urinary symptoms.

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